

Claims

- 1 1. In combination:  
2 a major household cleaning appliance having at least one internal compo-  
3 nent, the at least one internal component having at least one male fitting thereon:  
4 and  
5 a tube having two ends, at least one of the ends having a quick connect  
6 fitting thereon, the quick connect fitting releasably engaging the at least one  
7 male fitting.
  
- 1 2. The combination according to claim 1, wherein the major household clean-  
2 ing appliance has a plurality of internal components, the internal components  
3 each having at least one male fitting thereon, the tube having a quick connect  
4 fitting at both ends, one quick connect fitting being adapted to releasably engage  
5 a male fitting on one internal component, the other quick connect fitting being  
6 adapted to releasably engage a male fitting on another internal component.
  
- 1 3. The combination according to claim 1, wherein the tube is a drain tube  
2 adapted to drain water from within the major household cleaning appliance.
  
- 1 4. The combination according to claim 1, wherein the tube is a corrugated  
2 tube.
  
- 1 5. A quick connect assembly for use in household cleaning appliances, the  
2 household cleaning appliance comprising:  
3 a quick connect fitting having a quick connect retainer sleeve; and a quick  
4 connect retainer integrated into the sleeve,  
5 the quick connect fitting being adapted to be removably attached to a fit-  
6 ting in the household cleaning appliance.

1 6. The integrated quick connect assembly recited in claim 5, wherein the  
2 quick connect fitting is fabricated from plastic.

1 7. A quick connect assembly for use in household cleaning appliances, the  
2 household cleaning appliance having at least one fitting therein, the quick con-  
3 nect assembly comprising:

- 4 a length of corrugated tubing;
- 5 a quick connect retainer sleeve integral to the corrugated tubing; and,
- 6 a quick connect retainer integrated into the sleeve.

1 8. The quick connect assembly recited in claim 7, wherein the quick connect  
2 retainer sleeve is monolithic with the corrugated tubing.

1 9. The quick connect assembly recited in claim 8, wherein the quick connect  
2 assembly is adapted to be removably attached to the fitting.

1 10. The quick connect assembly recited in claim 9, wherein the quick connect  
2 assembly is fabricated from plastic.

1 11. A quick connect tubing assembly for use in major household cleaning ap-  
2 pliance applications comprising:

- 3 a length of corrugated tubing;
- 4 a quick connect retainer sleeve monolithically formed with the corrugated
- 5 tubing; and
- 6 a quick connect retainer integral with the sleeve, the quick connect re-
- 7 tainer comprising: an outwardly extending flange; an inwardly extending flange;
- 8 and an intermediate wall portion connecting the outwardly extending flange and
- 9 the inwardly extending flange.

1 12. A corrugated tubing assembly comprising:  
2 a length of corrugated tubing;  
3 a quick connect sleeve monolithic with one end of the corrugated tubing;  
4 and  
5 a quick connect retainer attached to the interior of the quick connect  
6 sleeve, the quick connect retainer having a plurality of inwardly extending resil-  
7 ient fingers, the resilient fingers being adapted to retainingly and releasingly en-  
8 gage a male fitting.

1 13. The corrugated tubing assembly according to claim 12, further comprising:  
2 an elastomeric sealing ring adapted to sealingly engage the male fitting.

1 14. The corrugated tubing assembly according to claim 13, wherein the quick  
2 connect sleeve has a stepped circular interior comprising: a quick connect re-  
3 tainer portion having a first inner diameter; a seal portion having a second diame-  
4 ter, the second diameter being smaller than the first diameter; and a seal retain-  
5 ing portion having a third diameter, the third diameter being smaller than the sec-  
6 ond diameter, the seal portion being between the quick connect retainer portion  
7 and the seal retaining portion, the seal retainer portion being monolithic with the  
8 length of corrugated tubing, the quick connect retainer engaging the quick con-  
9 nect retainer portion of the stepped circular interior.

1 15. The corrugated tubing assembly according to claim 14, wherein the elas-  
2 tomeric sealing ring fits radially within the inside diameter of the seal portion of  
3 the stepped circular interior and fits axially against a shoulder formed between  
4 the seal portion of the stepped circular interior and the seal retaining portion of  
5 the stepped circular interior.

1 16. The corrugated tubing assembly according to claim 14, wherein the quick  
2 connect retainer has an annular shape with an outwardly extending flange at one  
3 end thereof and an inwardly extending flange at the other end thereof, the out-  
4 wardly extending flange engaging a free end of the quick connect sleeve, the in-  
5 wardly extending flange engaging a shoulder formed between the quick connect  
6 retainer portion of the stepped circular interior and the seal portion of the stepped  
7 circular interior.

1 17. The corrugated tubing assembly according to claim 16, wherein the quick  
2 connect retainer inwardly extending flange is formed of a plurality of discontinu-  
3 ous flange sections.

1 18. A method of removably attaching tubing to household cleaning appliances,  
2 the household cleaning appliance having at least one fitting, said method com-  
3 prising the steps of;

4 providing a quick connect assembly integral with a length of tubing, said  
5 quick connect assembly comprising: a quick connect retainer sleeve; and a quick  
6 connect retainer integral with the sleeve; and

7 retainingly and removably attaching said quick connect assembly to said  
8 fitting.

1 19. The method according to claim 18, wherein the quick connect retainer in-  
2 cludes a plurality of flexible fingers and the step of retaining and removably at-  
3 taching said quick connect assembly includes flexing the plurality of flexible fin-  
4 gers with an radially outwardly extending flange on said at least one fitting.

1 20. A tubing assembly comprising:

2 a length of tubing, at least a portion of the tubing, including an end of the  
3 tubing, being formed from a thermoplastic elastomer;

4 a quick connect sleeve monolithic with the end of the length of the tubing  
5 formed of thermoplastic elastomer; and  
6 a quick connect retainer integrated into the quick connect retainer sleeve.

1 21. The tubing assembly according to claim 20, wherein the quick connect re-  
2 tainer comprises: an outwardly extending flange; an inwardly extending flange;  
3 and an intermediate wall portion connecting the outwardly extending flange with  
4 the inwardly extending flange.

1 22. The tubing assembly according to claim 20, wherein the quick connect re-  
2 tainer includes a plurality of inwardly extending resilient fingers, the resilient fin-  
3 gers being adapted to retainingly and releasingly engage a male fitting.

1 23. In combination:

2 a major household cleaning appliance having at least one internal compo-  
3 nent, the at least one internal component having at least one male fitting thereon;  
4 and

5 a tube having at least a portion formed of thermoplastic elastomer, at least  
6 one end of the tube being formed of the thermoplastic elastomer, the at least one  
7 end of the tube being formed of the thermoplastic elastomer having a quick con-  
8 nect fitting thereon, the quick connect fitting retainingly and releasingly engaging  
9 the at least one male fitting, the tubing adjacent the quick connect retainer sleeve  
10 having a smaller diameter than the quick connect retainer sleeve, the tubing  
11 smaller diameter portion sealingly engaging the at least one male fitting.